New Hampshire Department of Environmental Services
Groundwater and Drinking Water Strategy
Fall, 2002 Update Report

This report describes the current status of the New Hampshire Department of Environmental Services' (DES's) Groundwater and Drinking Water Strategy. The Groundwater and Drinking Water Strategy is a five-year plan to improve protection of groundwater and drinking water sources in New Hampshire. The Strategy, which was finalized in August 2000, was developed by DES and stakeholders to identify and address the most pressing groundwater and drinking water protection needs. It contains ten action areas under the three broad headings of prevention, education, and resource assessment. Work plan tasks, participants, and a schedule are identified for each action area. The strategy does not include the routine work being done by a variety of programs within and outside of the Department of Environmental Services (DES) to protect groundwater and drinking water. Rather, it represents new initiatives by DES and its partners to improve protection of these important resources.

Groundwater and Drinking Water Strategy Update Reports are issued periodically in order to keep stakeholders informed of the progress being made on the Strategy. A brief description of each work task is followed by a report on its current status. Any significant changes from the work tasks, schedules, or participants identified in the Strategy are noted. Completed tasks are shown in gray. Text that is underlined contains electronic links that are useful if you are viewing the report electronically. A copy of the Strategy as well as Update Reports can be obtained at http://www.des.state.nh.us/dwspp/strategy or by contacting the Drinking Water Source Protection Program at 271- 1168.

GROUNDWATER & DRINKING WATER STRATEGY UPDATE

OVERVIEW:

Over the last year, steady progress has been made on completion of many Strategy tasks. Unanticipated events, including the terrorist attacks of September 11, 2001, the prolonged drought, and water withdrawal issues have diverted resources that would otherwise have been dedicated to the Strategy and have delayed the completion of certain tasks. In some cases, these events have also changed the nature of tasks. Important work on water availability and emergency preparedness has been the main focus of DES' groundwater and drinking water protection programs in the past year and will continue to be of great importance in the coming year. An explanation is included under each task where these activities have delayed or changed specific Groundwater and Drinking Water Strategy tasks.

PREVENTION ACTION AREAS:

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Failed Septic Systems in Source Water Protection Areas:
Description: Create incentives for addressing failed septic systems and perform outreach to local officials in municipalities where there are multiple problem systems in source water protection areas.

Status
The first status report on this action area reported progress on two fronts. The first was that DES was providing a lake association with a grant to do the planning necessary to address failed systems via a package wastewater treatment plant. The second was that DES was developing a loan program to be administered by the New Hampshire Community Loan Fund (NHCLF) to provide low interest loans for addressing failed septic systems. Unfortunately, for a variety of reasons, neither of these projects came to fruition. However, a more recent grant project involving designing a community septic system for an area around Lake Baboosic may serve as a model for other such initiatives in New Hampshire.

Misuse of Stormwater Systems in Source Water Protection Areas: ***COMPLETED***
Description: Map storm water outfalls in urban source water areas for surface water supplies and perform dry weather sampling under the Drinking Water Source Assessment Program.

Status: EPA staff, in cooperation with DES, have surveyed, mapped, and sampled outfalls on the Exeter River, Arlington Mill Pond, Canobie Lake, Androscoggin River, Paugus Bay (Lake Winnipesaukee), Lake Massabesic, and Mascoma River. These represent all of the drinking water sources DES identified as high priority based on the amount of urban land cover upstream of the intakes. The surveys found no sewage discharges. Additional surveys will be conducted if water suppliers request them and EPA assistance is still available.

Loss of Stormwater Recharge in Developed Areas: ***COMPLETED***
Description: Develop guidance and conduct outreach for municipalities in regulating the management of stormwater where groundwater recharge is a concern.

Status: The working group agreed that a model ordinance would be premature and that the focus should instead be on raising awareness of this issue and possible approaches to addressing it. DES developed a guide, *Managing Stormwater as a Valuable Resource*, which became available in September. This guide alerts towns and water suppliers to the need to manage stormwater as a resource, encourages the appropriate use of Best Management Practices that infiltrate stormwater into the ground, and solicits comments and suggestions regarding the need for further guidance from DES. Its availability was publicized by distributing copies to regional planning commissions; posting a copy on DES' web site; notifying planning boards, conservation commissions, and conservation districts; issuing a press release; publishing an article in DES's newsletter and *The*

Source; presenting a workshop at the NHACC Annual Meeting; and contacting various organizations with requests to include a notice in their newsletters.

Protection of Current and Future Public Drinking Water Sources:
Description: Identify whether there is a need for State-level land use regulation to protect current and/or future sources of public drinking water.

Status: An initial meeting was held in April 2001 to begin discussion on the need for further Statewide land use restrictions in source water protection areas. Because of unanticipated events discussed in the overview section, the anticipated follow-up meeting of the subcommittee was not held. To reinvigorate our efforts on this task after several months of having no resources to dedicate to it, DES staff developed a draft questionnaire designed to gauge the views of municipal officials and water suppliers regarding threats to municipal water supply sources and appropriate protection measures. The questionnaire was sent to committee members and we received many suggestions for revisions. We have yet to revise the questionnaire but intend to use the results from it as a starting point in further discussions. With respect to the existing water supply watershed rules (Env-Ws 386), staff have been working with water suppliers and citizens to develop revisions to protect specific sources (Lake Sunapee, Pennichuck Ponds, Mountain Pond, and Gordon Hill Reservoir), defending the existing provisions for Lake Sunapee against a legal challenge, seeking clarification regarding enforcement options, and developing a schedule of fines.

Water Supply Land Conservation:
Description: Permanently protect critical water supply lands through acquisition or easement.

Status: Legislation was passed establishing a 25% matching grant program for water supply land protection in June of 2000. DES has since implemented the grant program with assistance from the Society for Protection of New Hampshire Forests. The first two grant rounds provided 1.6 million dollars to assist in protecting 2,083 acres of critical water supply lands. Projects were funded in Barrington, Raymond, Portsmouth, Nashua, Epsom, Hollis, and Stratham. More information about individual projects is available on the DES website (www.state.nh.us/dwspp). In the current state fiscal year, 1.5 million dollars is available in the DES budget for this program. The Department's deadline for the third grant round was November 1, 2002. The biannual report for the program and the results of a survey of potential grant recipients conducted to evaluate and improve the program will be available in November 2002(it will be posted on the DES website). Funding for the program is uncertain after June 30, 2002. DES has included funding (1.5 million/year) in its budget for 2003 and 2004. With continued funding, more critical water supply lands can be permanently protected to ensure an adequate future supply of good quality water for municipalities in New Hampshire.

Disposal of Waste Pesticides:
Description: Convene interagency work group to promote appropriate disposal of

pesticides including identifying funding mechanisms so that pesticides from small commercial operations can be collected during household hazardous waste collection events.

Status: Initial meetings were held with the Division of Pesticide Control (NH Department of Agriculture, Markets & Food) to identify and analyze issues associated with this task. The main obstacle is that a funding source for disposal needs to be secured. Little additional progress has been made on this task due to the unforeseen events discussed in the overview. Additional efforts will be made in the coming year to identify a funding source.

Abandoned Wells: ***COMPLETED***
Description: Educate well drillers and corrective action consultants and program managers to ensure that they understand and are following the requirements for proper water well abandonment and monitoring well abandonment.

Status: The Source Water Protection Program has coordinated with the Waste Management Division and the Water Well Board to developed a monitoring well abandonment fact sheet. The fact sheet summarizes the obligations of all owners of monitoring wells associated with hydrogeologic investigations in regards to maintaining or abandoning the wells. The fact sheet explains the threat that improperly maintained or abandoned wells pose to groundwater quality, and provides information about how to report the occurrence of an improperly maintained or abandoned well to the state so that these problems can be mitigated. The fact sheet was mailed to local conservation commissions, local health officers, environmental consultants, and drilling consultants in the spring of 2002.

Greater Emphasis on Surface Water Source Protection:
Description: Develop a model rule for the protection of water supply watersheds. Provide outreach to municipalities affected by those rules. Explore the need for a regional study of cost effectiveness of watershed protection in terms of avoided treatment costs. Develop guidance regarding development and land use practices in water supply watersheds.

Status: The model rule was completed and distributed to water suppliers in April 2000. Outreach to municipalities was done in September 2000. The cost-benefit study idea was presented to the New England Groundwater and Source Water Managers work group and to NEWWA's Surface Water Committee, but there was little interest in pursuing a study. DES plans to develop guidance regarding local enforcement of the state's water supply watershed protection rules, but progress on this task depends on the resolution of a number of legal questions. (Please see **Protection of Current and Future Public Drinking Water Sources** above**.)**

Agricultural Sources of Pesticides, Nutrients, and Pathogens: *COMPLETED*
Description: Develop a small grant program to assist small agricultural operations with addressing potential contamination sources affecting water supply sources.

Status: DES executed a Memorandum of Agreement with NH Department of Agriculture, Markets and Food (DAMF), under which DES is providing $30,000 per year in Clean Water Act Section 319 funds (matched with $20,000 per year in state funds in the current biennial budget) for DAMF's Agricultural Nutrient Management Program (small grants to agricultural land and livestock owners to minimize water quality impacts). A second MOA to provide $25,000 per year in Safe Drinking Water Act funds to the DAMF program received Governor and Council approval in October 2002. DAMF will use the additional funds for small projects that will enhance the protection of water supply sources. Drinking Water Source Protection Program staff will participate in the selection of projects to be funded.

Emergency Response Planning: *COMPLETED*
Description: Take necessary steps to ensure that local emergency responders have good knowledge of wells and intakes and that water suppliers with a river source have time of travel data being produced by the USGS.

Status: Since September 11, 2001, a great deal of effort has gone into improving emergency preparedness at the State and Local level. A rule requiring water systems to have an emergency plan was adopted and an emergency response template was developed. Training to complete emergency plans is ongoing. Federal requirements and funding for system vulnerability assessments and emergency planning have also occurred. DES intends to complete a mock emergency in the coming year to ensure communication and response system functioning. The subtask determining times of travel on major water supply rivers is completed.

EDUCATION ACTION AREAS:

Need for Targeted Outreach/Education: *COMPLETED*
Description: Revise the outreach and education plan developed under the previous CSGWPP work plan.

Status: Completed July 2000 (copies available by contacting Nicole Clegg at 271-4071 or from our website http://www.des.state.nh.us/dwspp/edplan.pdf).

Outreach to Private Well Owners: *COMPLETED*
Description: Develop and implement a private well initiative.

Status: The initiative, which encourages more testing of private wells, was finalized November 2000 (visit our website for more information at http://www.des.state.nh.us/well_testing.htm); implementation is on track. Targeted outreach to municipal officials, realtors, builders, home inspectors, and mortgage lenders is underway. An EPA grant has paid for development and distribution of radio public service announcements which have been airing since August 2001. DES has developed and distributed a flier/poster display to health officers throughout the state for installation in public buildings EPA Region I has assisted in printing the fliers and has spotlighted the NH program as a prototype for all states in the region.)

Water System Operator Education: *COMPLETED*
Description: Improve course curriculum.

Status: The source protection presentation for the operator education training was updated substantially for November 1999 course. Based on evaluations completed by attendees, the presentation was well received. The presentation has been updated again for January 2001 and will be evaluated continually.

Water and Chemical Usage Conservation in Site Development and Maintenance:
Description: Collaborate with NH Comparative Risk Project/Minimum Impact Development Partnership (they are currently developing site design recommendations, prioritized for effectiveness) and develop and distribute material on water, nutrient, and pesticide conservation to homeowners and businesses

Status: The MID partnership is currently working on pilot projects throughout the state. DES plans to incorporate the results of these pilot projects, when available, into outreach materials. Legislation passed in 2001 requiring DES to develop a water conservation BMP approach to be employed in association with new large water withdrawals. Developing and advocating water conservation BMPs for site development and maintenance will be part of this effort.

Educate the General Public about Risk:
Description: Develop flyer to accompany Source Water Assessments and other DES correspondence to homeowners or the general public.

Status: The flyer was developed and sent to interested parties for review. It will be finalized along with a plan for its distribution in the fall of 2002.

RESOURCE ASSESSMENT ACTION AREAS:

Water Availability - Comprehensive Water Management:
Description: This tasks contained four sub-tasks. The first is to improve coordination of DES' efforts including in-stream flow rules, large groundwater withdrawal rules, and water quality standards. The second is to develop a model, in partnership with USGS, to

assess water availability. The third is to develop and implement a plan to expand the current groundwater well network used to measure water levels. The fourth sub-task is to develop water conservation policies in conjunction with Large Groundwater Withdrawal and In-stream Flow Rules.

Status:
Task 1 – The Large Groundwater Withdrawal Rules were adopted in April of 2001. The rules ensure that water resources (surface water bodies, lakes, wetlands, rivers) and existing water users are not adversely impacted by new large groundwater withdrawals. DES continues to work with the Governor's office and legislators to pursue other legislative initiatives that will further protect the environmental and existing and future water users from impacts associated with large groundwater withdrawals. DES has ensured that all relevant environmental programs are coordinating the review of large withdrawal applications and that the large groundwater withdrawal rules reference applicable portions of these programs. Coordination with the development of Instream Flow Rule continues. However, the proposed requirements of the Instream Flow Rules have changed continuously and significantly since the Groundwater and Drinking Water Strategy was developed, and therefore most coordination efforts continue to be at the preliminary planning stages only.

Task 2 – The USGS has finished preparing a draft Open File Report titled "Development of Regression Equations to Estimate Seasonal and Period-of-Record Flow Durations and Seasonal and Annual Low-Flow Frequency Statistics in New Hampshire Streams." The report summarizes the approach to work and analyses that were completed to develop equations that can estimate annual and seasonal flow durations (60, 70, 80, 90, 95, and 98 percent exceedances) for a given stream in New Hampshire. USGS has also developed regression equations to estimate recharge to sub-basins in New Hampshire, and a draft Open File report for this work is currently being reviewed internally at USGS. A third Open File Report will be prepared by USGS later this year that describes the methods USGS used to link the stream flow frequency and groundwater recharge regression equations to GIS, such that the flow frequency of the stream or recharge to a given subbasin may be estimated by "pointing and clicking" on any reach of stream identified on a USGS topographic map. Work on the development of the "point and click" GIS tool has been delayed while DES and UNH Complex Systems Research Center finish developing and debugging a stream centerline GIS coverage for the State of New Hampshire.

Task 3 – DES continues to maintain a database of water levels for monitoring programs associated with large groundwater withdrawal permitting. At this time, the database contains continuous-monthly water level data for approximately 45 wells. DES has tables and time series graphs of the water level data. DES will continue to maintain this database and assess environmental trends. Additional monitoring points are being added as large groundwater withdrawal permits are issued in the future, and ultimately all water level data will be transferred to a state water level database operated and maintained by the DES' New Hampshire Geological Survey.

DES is also working with the Office of State Planning, United States Geological Survey, and communities in Strafford and Rockingham counties to research DES' files to develop a regional, long-term water-resources monitoring program. The program will activate a comprehensive network of ground-water observation wells and stream gages as part of the Study to Assess the Sustainability of Groundwater Resources In Southeastern New Hampshire that was initiated earlier this year. As part of project, DES will review data contained in Waste Management Division files and other relevant files and identify wells with historic water level monitoring data. This data will be compiled in a database, and wells with good construction data, located in accessible areas of interest will be added to the state's existing groundwater observation network. Additional stream gauging and water level data will provide southeastern New Hampshire communities and regional planning agencies with new tools and data needed to make informed decisions about water availability and use, and to plan for future growth in the region.

Task 4 – DES adopted requirements for Water Conservation Plans as part of the Large Groundwater Withdrawal Regulations in 2001. DES also offered specific recommendations to further promote water conservation in a report that summarized a study completed by DES and the Public Utilities Commission in 2001. The report identified areas where New Hampshire can further encourage and enable water users to implement water conservation measures. A copy of this report may be found online at (http://www.des.state.nh.us/pdf/report_des-puc.pdf). The strategy for New Hampshire's Water Conservation Program this year was to act upon the recommendations in the report which include: 1) Establishing a formal State policy on water conservation for all operations and programs that affect the planning, use, and management of the state's water resources; 2) Developing and promoting a model water use restriction bylaw for local municipalities to adopt and enforce to reduce wasteful uses of water; 3) Expanding upon the existing public outreach initiatives including developing a series of fact sheets that educate the public and businesses on how to incorporate water conservation practices into their daily activities ; and 4) Working with the New Hampshire Public Utility Commission to encourage the development of incentives for rate-regulated for-profit water utilities to promote water conservation measures.

DES followed through on all four of these tasks. First, DES assisted legislators in drafting and then supported Senate Bill 440 which defined water conservation under New Hampshire's Groundwater Protection Act, and also requires that DES develop water conservation best management practice rules for new groundwater withdrawals associated with public water systems, new groundwater withdrawals that exceed 57,600 gallons over any 24 hour period, and for new surface water withdrawals that require a 401 Water Quality Permit. DES is currently developing a draft of the water conservation rules and will be convening an advisory committee later this year to assist in the rulemaking process.

Second, DES has developed a model water use restriction by-law that water systems may use to reduce or prohibit entirely non-essential uses of water. The model has been

heavily utilized this past summer by water systems that have been affected by the ongoing drought.

Third, DES has developed sixteen (16) water conservation fact sheets. These fact sheets may be accessed at http://www.des.state.nh.us/factsheets/ws/ws-26-1.htm. DES has also developed four water conservation case studies for businesses and institutions that have successfully implemented water conservation measures at their facilities. DES also has made approximately eight presentations over the last year to communities and regional planning agencies regarding water conservation.

DES and WasteCap of New Hampshire were awarded a grant to establish a water conservation educational outreach effort. This project will include providing commercial water users with information they can use to improve water use efficiency at their businesses. DES and Waste Cap will be conducting two half-day conferences on water conservation for institutions on November 12 and 13 (see information on DES website).

Fourth, DES has participated in a docket at the Public Utilities Commission (DW 01-253) which established a public forum to discuss approaches for creating incentives to implement water conservation through rate design structures and Pay As You Save (PAYS) programs.

Ambient Quality of Groundwater and Drinking Water Sources:
Description: This task involves increasing the amount of and improving storage of and access to drinking water and groundwater quality data. It involves the creation of an information management system and improved linkage of water quality and locational data.

Status: During the summer of 2002, DES received National Science Foundation funding to employ an intern to begin searching Waste Management Division site files for reliable sources of ambient groundwater quality and groundwater level data. The search was concentrated within the 42 towns that comprise the study area proposed for the cooperative project in the Seacoast region described under Task 3 above. The initial data "mining" activity was limited to characterizing data contained within the site files, using a standard set of descriptors, so that the actual data values could be readily captured by a digital database at a later date. This work will be expanded once funding is made available under the Seacoast project to complete a comprehensive evaluation of in-house data sources. However, no funding has been allocated to actually populate an ambient groundwater quality database from data contained within the site files. Another initiative that is underway to improve linkage of water quality and locational data is a proposal to put permanent tags on public water supply wells. A draft proposal is under internal review at DES.